

# GOODS MOVEMENT TASK FORCE

## AGENDA

WEDNESDAY, JANUARY 17, 2007  
9:30 AM – 11:30 AM

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### ITEM

#### 1.0 CALL TO ORDER AND INTRODUCTION

**Hon. Art Brown**  
**City of Buena Park**  
**Chairperson**

#### 2.0 PUBLIC COMMENT PERIOD

Members of the public desiring to speak on an agenda item or items not on the agenda, but within the purview of this committee, must fill out a speaker's card prior to speaking and submit it to staff. A speaker's card must be turned in before the meeting is called to order. Comments will be limited to three minutes. The Chair may limit the total time for comments to twenty (20) minutes. When you are called to speak, please come forward and state your name for the record.

#### 3.0 CONSENT CALENDAR

**5 minutes**

##### 3.1 Approval Items

3.1.1 Approval of November 15, 2006 minutes  
**Attachment 3.1.1**

**Page 3**

#### 4.0 INFORMATION ITEMS

##### 5.1 Update on SCAG Heavy Duty Truck Model

**Mike Ainsworth,**  
**SCAG Staff**  
**15 minutes**

##### 5.2 Update on Multi-County Goods Movement Action Plan Study

**Michelle Smith,**  
**Project Manager**  
**Metro**  
**10 minutes**

5.3 Update on the Port and Modal Elasticity Study Phase II

**Dr. Robert  
Leachman,  
Leachman and  
Associates, LLC  
20 minutes**

5.4 Update on the Inland Port Feasibility Study

**Dan Smith,  
The Tioga Group  
20 minutes**

5.5 Update on the Environmental Mitigation Plan for  
Goods Movement Study

**Jeff Ang-Olson,  
ICF Consulting  
20 minutes**

## **6.0 STAFF REPORT**

**Danny Wu,  
SCAG Staff**

## **7.0 COMMENT PERIOD**

Members of the public desiring to speak on an agenda item or items not on the agenda, but within the purview of this committee, must notify the staff and fill out a speaker's card prior to speaking. Comments will be limited to three minutes. The Chair may limit the total time for comments to twenty (20) minutes.

## **8.0 NEXT MEETING**

The date of the next Goods Movement Task Force meeting will be:

Wednesday, March 21, 2007  
9:30 - 11:30 am  
SCAG Offices  
San Bernardino A&B Conference Room

## **9.0 ADJOURNMENT**

# REPORT

Item 5.1

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**DATE:** January 17, 2007

**TO:** Goods Movement Task Force

**FROM:** Danny Wu, Program Manager for Goods Movement, 213-236-1930,  
[wu@scag.ca.gov](mailto:wu@scag.ca.gov)

**SUBJECT:** SCAG Regional Travel Demand Model and Heavy Duty Truck Model Update

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## BACKGROUND:

Mike Ainsworth, SCAG, will present an overview of the new Regional Travel Demand Model and provide an update/status of the Heavy-Duty Truck Model Development Project.

# REPORT

Item 5.2

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**DATE:** January 17, 2007

**TO:** Goods Movement Task Force

**FROM:** Danny Wu, Program Manager for Goods Movement, 213-236-1930,  
[wu@scag.ca.gov](mailto:wu@scag.ca.gov)

**SUBJECT:** Multi-County Goods Movement Action Plan

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## **BACKGROUND:**

Ms. Michelle Smith, Project Manager, Metro will provide an update on the progress of the Multi-County Goods Movement Action Plan.

# REPORT

Item 5.3

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**DATE:** January 17, 2007

**TO:** Goods Movement Task Force

**FROM:** Danny Wu, Program Manager for Goods Movement, 213-236-1930,  
[wu@scag.ca.gov](mailto:wu@scag.ca.gov)

**SUBJECT:** Port and Modal Elasticity Study Phase II

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## BACKGROUND:

In May 2006, SCAG retained Leachman and Associates, LLC to perform the Port and Modal Elasticity Study Phase II. Phase II of the study is designed to obtain industry and stakeholder feedback on the Port and Modal Elasticity Phase I study and to refine the existing Long-Run Model, as well as gather information needed for the construction of the Short-Run Model. The output of the Short-Run Model will be to determine the distribution of imports by port and landside channel used to draw conclusions concerning the short-run elasticity of imports via the San Pedro Bay.

Dr. Robert Leachman of Leachman and Associates, LLC will provide an update on the progress of the Port and Modal Elasticity Study Phase II study.

## Progress Report: Port and Modal Elasticity Study – Phase II

Rob Leachman  
Leachman & Associates LLC  
17 January, 2007

Jan 17, 2007

Leachman and Associates LLC  
Port and Modal Elasticity Study

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## Purpose of Study

- Develop analytical methodology and database to predict flows of containerized imports by port and landside channel as a function of rates and fees, transportation service quality, and future infrastructure
- Conduct outreach efforts with stakeholders
- Carry out demonstration analyses

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Port and Modal Elasticity Study

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## Phase I

- Completed August, 2005
- “Long-run model”
  - 2003-2004 transportation rates import value distributions, flow time statistics
  - Takes mean and standard deviation of container flow times as given and fixed
  - Model calculates predicted container flows as a function of port fees and transportation rates
  - Demonstrated impact of hypothetical container fees at San Pedro Bay

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## Phase II

(June 2006 – June 2007)

- Outreach to stakeholders
- Update database with changes in import distributions, transportation rates and transportation services
- Develop “Short-run model”
  - Output of model is the predicted container flows (same as Long-run model)
  - Takes infrastructure as given and fixed, calculates predicted flow times

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## Phase II team

- Leachman & Associates
- Arrellano Associates (outreach)
- Theodore Prince (steamship lines and 3PLs)
- George Fetty (RRs)
- Dr. Anne Goodchild (PNW and analytics)
- David Lehlbach (East Coast and RRs)

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## Outreach activities

- Presentation of Phase I results and Phase II interviews held with 3 major importers, 2 major 3PLs, 1 railroad, 2 major terminal operators, 3 dray companies, 4 ports
  - General confirmation of methodology and insights
  - No comment on potential container fees
- More outreach to come

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## Phase II data collection

- 2005 PIERS and WTA summaries of customs data obtained from POLB and MARAD, value distribution updated
- Asia – US vessel strings updated to 2006
- Port volumes and port infrastructure updated to 2006
- Update of transportation rate database in progress
- Data collection on channel volume vs. flow time in progress

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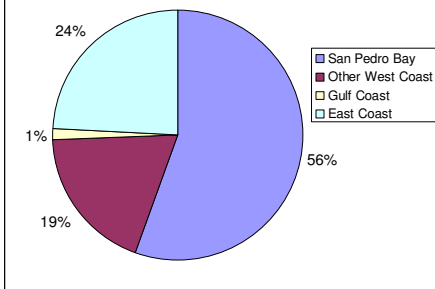
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**US Port Shares of 2005 US Containerized Imports from Asia (TEU basis)**



Source: PIERS

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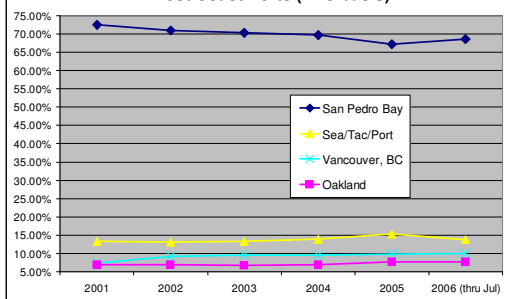
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**Figure 2. Shares of Inbound Loaded Containers at West Coast Ports (TEU basis)**



Sources: Port Web Sites

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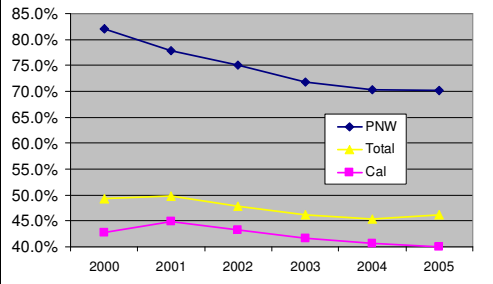
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**Figure 7. Percent Intermodal Movement of Marine Containers Imported Through US West Coast Ports (TEU Basis)**



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Sources: PMA, IANA

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## What comprises the SPB share?

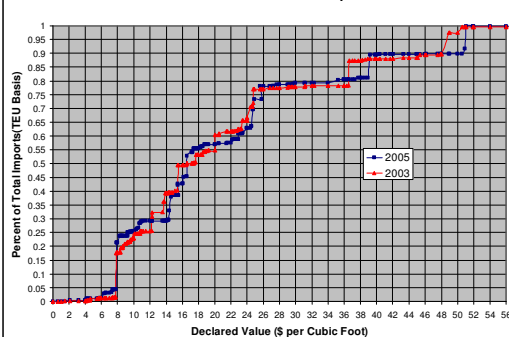
- ~37% of marine boxes entering the SPB Ports get on a train (going east of the Rockies)
- The "local" region served by the SPB Ports (So Cal, So NV, AZ, NM, So UT, So Co) encompasses 12% of continental US purchasing power.
- =>  $\sim (.12)/(.56) = 21\%$  of inbound marine boxes contain goods that are consumed "locally".
- => ~42% of inbound marine boxes are either trucked out of the "local" region or unloaded in the region and later re-shipped out of region in domestic vehicles (truck or rail).

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**2003 vs. 2005 Cumulative Distributions of Containerized Asia - US Imports**



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Sources: PERS, WTA, PMA

## Import distribution

- Average declared values of 2005 Asia – US imports:
  - Via East Coast and Gulf ports: \$18.57 per cubic foot
  - Via West Coast ports: \$22.66 per cubic foot
  - Overall: \$21.66 per cubic foot

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## Comments on import distribution

- 25% of Asia – US imports are > \$26 per cu. ft. in declared value. If distributed nationwide, such goods are most efficiently handled by consolidating/deconsolidating all US volume through the San Pedro Bay ports.
- 25% of Asia – US imports are < \$13 per cu. ft. These goods are most economically handled by shipping the marine box intact via the cheapest channel.
- Goods in the other 50% category that are distributed nationwide are most economically handled by using a subset of ports, e.g., 2 on East Coast and 2 on West Coast, to do regional consolidation/deconsolidation

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## Implications for SPB ports' share

- "Local" region served by SPB ports comprises 12% of total USA purchasing; conservatively, suppose low-value cargoes destined to other regions are all handled via other ports.
- Assume SPB is selected to be one of the regional consol/deconsol centers by all importers in the mid-value group and also to be the center for all importers in the high-value group, and suppose all are nation-wide importers.
- Then the resulting theoretical long-run SPB share of Asia – US imports is:  
$$(1.0)(.25) + (.25)(.50) + (.12)(.25) = 0.405 \text{ (vs. } 0.56 \text{ now)}$$
- More than 90% of this is amenable to consol/deconsol!

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# REPORT

Item 5.4

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**DATE:** January 17, 2007

**TO:** Goods Movement Task Force

**FROM:** Danny Wu, Program Manager for Goods Movement, 213-236-1930,  
[wu@scag.ca.gov](mailto:wu@scag.ca.gov)

**SUBJECT:** Inland Port Feasibility Study

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## BACKGROUND:

In 2005, SCAG retained The Tioga Group to perform the Inland Port Feasibility Study. An Inland Port facility offers broad potential benefits in facilitating goods movement, encouraging economic development, reducing traffic congestion, and otherwise promoting the regional objectives of the 2004 RTP. The objective of the study is to determine which of these benefits can be realized, in which kinds of facilities, and at which sites.

Mr. Dan Smith of The Tioga Group will provide an update on the progress of the Inland Port Feasibility Study.



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### Project Objectives

- Determine the purpose and benefits of an Inland Port and the various functions it might include
- Identify the potential utility of an Inland Port to users and stakeholders in the goods movement system
- Identify the potential freight traffic congestion relief

Can we reduce 116 truck miles to 40 truck miles ?



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### Port Truck Survey Results: 2010 Truck Flows

- The underlying Inland Empire market appears to be large enough for rail service.
- Bobtail tractors will not move on the rail shuttle, but some of their activity will be transferred to the inland locations
- Bare chassis movements will require additional study to determine which, if any, would be candidates for a rail shuttle

2010 Truck Flows	Daily			Annual		
	San Bernardino	Riverside	Total	San Bernardino	Riverside	Total
Port to Region						
Import Loads	768	188	956	213,965	52,377	266,342
Emptys, Chassis, Bobtails	885	216	1,101	246,561	60,178	306,739
Subtotal	1,653	404	2,057	460,526	112,554	573,080
Region to Port						
Export Loads	310	87	397	86,366	24,238	110,604
Emptys, Chassis, Bobtails	1,591	448	2,039	443,253	124,813	568,066
Subtotal	1,901	535	2,436	529,619	149,051	678,670
Total						
Loads	1,078	275	1,353	300,331	76,615	376,946
Emptys, Chassis, Bobtails	2,476	664	3,140	669,814	184,990	854,804
Grand Total	3,554	939	4,493	990,144	261,605	1,251,750

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Major Issues Facing an Inland Port

- Matching inland port strategy with potential locations.
- Site/VMT tradeoffs.
- Alternatives for Inland Empire sites.
- Rail capacity constraints.

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Matching inland port strategy with locations

- Satellite Marine Terminals, Logistics Parks, and Agile Port terminals all provide potential benefits in different ways.
- Different possible Inland Port sites would serve different purposes.
- Sites closest to current markets offer near-term potential as satellite marine terminals.
- More distant sites in developing areas have greater potential as logistics parks.
- Strategic rail sites offer potential as agile port terminals.

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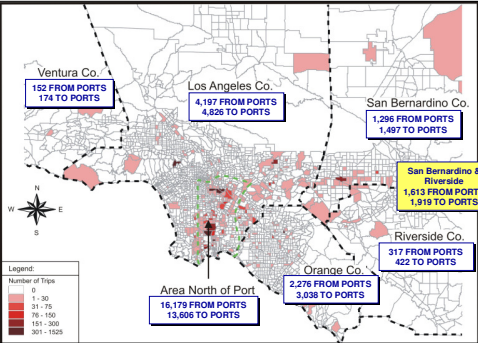
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Current Markets: Daily 2005 Trips



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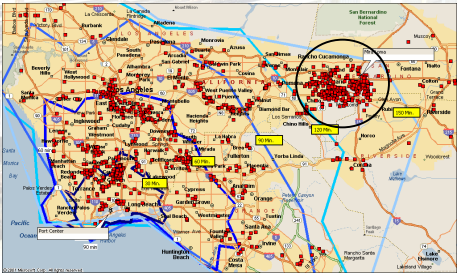
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Potential Market Access: Mira Loma

- The Mira Loma concentration of distribution centers and other customers is a key target market.



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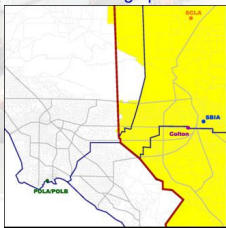
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Methodology

- The Inland Port service area for this analysis is defined as Riverside and San Bernardino Counties as well as Los Angeles County East of SR-71.
- The scenarios were generated for AM, midday, and PM peak hours for the years 2005 and 2010 for the following options:
  - No inland port
  - Colton Inland Port
  - SBIA Inland Port
  - SCLA Inland Port



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Colton Scenario

- The Colton Inland Port Facility has the highest reduction in port-related VMT. Proximity to Mira Loma is the major factor.
- A Colton Inland Port reduces 90,000 truck VMT per day in 2005 and 116,000 truck VMT per day in 2010. This is a reduction of 4.9% and 4.6% of the port-related truck VMT respectively.



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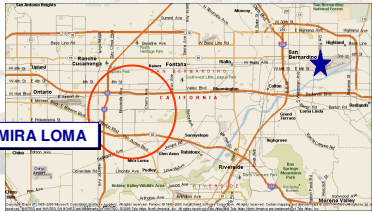
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SBIA Scenario

- SBIA, because it is eight miles farther to the east of Mira Loma, has a lower VMT-reduction benefit than the Colton location.
- An SBIA Inland Port facility reduces **77,000** truck VMT per day in 2005, and **99,000** truck VMT per day in 2010. This is a reduction of 4.1% and 3.9% of the port-related truck VMT respectively.



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SCLA Scenario

- The SCLA location does not offer a great benefit for VMT or travel time for Inland Empire customers. SCLA is better positioned for future market development.
- An SCLA facility reduces **14,000** truck VMT per day in 2005, and **14,000** truck VMT per day in 2010. This is a reduction of 0.4% and 0.5% of the port-related truck VMT respectively.



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Alternatives for Inland Empire sites

- The lack of usable sites for a new Inland Empire intermodal terminal is a formidable barrier to development of a rail-served inland port.
- BNSF's San Bernardino terminal is full, with no room for a long-term rail shuttle operation.
- BNSF has searched for a new Inland Empire terminal site without success.
- UP does not have an Inland Empire intermodal terminal.
- Large intermodal terminals are unpopular with communities.

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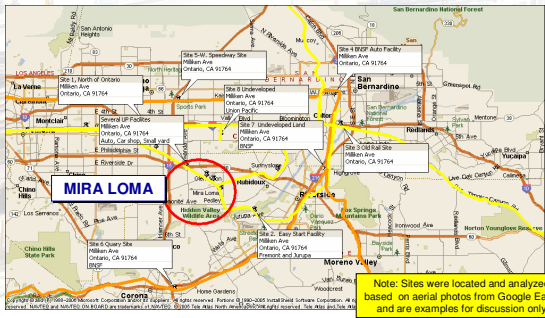
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Sample Small Alternative Sites



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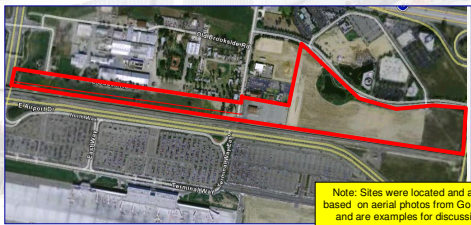
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Site 1, North of Ontario Airport

- Apparently 3 parcels of undeveloped or unused property with 35+ acres of useable property on UP main line
- This location would be a typical small rail intermodal facility with up to 100,000 units of capacity.
- Estimated Capacity: 5000' of loading track plus 1000 parking slots.



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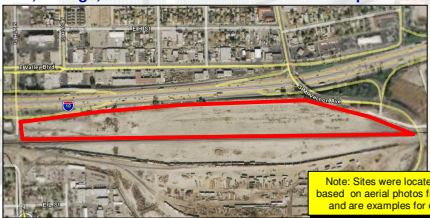
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Site 3, Colton

- Old, unused UP rail facility, approximately 25 acres north of the main. There is additional room to south. Direct access to I-10 is a tremendous advantage.
- This site could be either a low-cost 100,000 lift conventional terminal or a high cost, very high volume container terminal with tracks, storage, and travel lanes all under a wide span crane.



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Site 6, Quarry Property

- About 25 acres of quarry land accessed via BNSF and I-15/ SR 91 .
- This facility is representative of several quarry properties with rail access in the basin. Loading tracks would be 1000'-1200' on a perpendicular stub end configuration. There would be plenty of land for parking.



Note: Sites were located and analyzed based on aerial photos from Google Earth and are examples for discussion only

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Site 7, BNSF Undeveloped Land

- Approximately 30 acres of undeveloped land accessed via BNSF and Center Street to I-215
- Undeveloped property is costly to develop into intermodal capacity.
- This facility would make a good container yard with lots of room for parking relative to the lift on lift off operation.



Note: Sites were located and analyzed based on aerial photos from Google Earth and are examples for discussion only

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Alternative Site Implications

- There are candidate sites in the Inland Empire for one or more small intermodal terminals to support a rail shuttle.
- A special-purpose facility could be owned and operated by the railroad (with daily operations contracted out), or by a public or private third party.
- A special purpose terminal could minimize on-terminal dwell time and incorporate chassis pooling or off-site chassis storage to conserve space.
- Existing brownfield or rail sites could be used either as long-term or interim terminals.

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## Rail capacity constraints

- Rail capacity constraints are probably the most serious barrier to development of a rail shuttle.
- BNSF and UP are facing escalating capacity demands from both rail freight growth and public passenger service.
- Given limited capacity, the railroads will logically favor long-distance, high-revenue traffic – and that strategy is consistent with the public interest in efficiency.
- Railroads will not willingly participate in short-haul intermodal shuttles without significant capacity increases. Operating subsidies alone are not enough.

## Rail capacity options

- California's current focus on transportation infrastructure provides opportunities to address rail capacity constraints.
- Taken together the infrastructure bonds and the State Goods Movement Action Plan signal a commitment to address critical shortfalls and a willingness to finance rail capacity for both public and private uses.
- To take advantage of the opportunity –
  - The public sector may need to negotiate complex but balanced packages of capital investment and service commitments.
  - Railroads may need to treat public capital dollars and operating subsidies as parts of a comprehensive revenue stream from public-interest operations.

## Task Structure and Approach

- ✓ Task 1: Define the concept and purpose of an Inland Port facility
- ✓ Task 2: Describe existing Inland Port concepts in the SCAG region
- Task 3: Interviews and surveys to determine feasibility and demand
- Task 4: Estimate the costs and benefits of the proposed Inland Port concepts
- Task 5: Final Report - Evaluate the feasibility of alternative Inland Port sites

Task 1 & 2 - Purpose & Concepts		Task 3 - Interviews, Stakeholders, Data Collection				Task 4 - Analysis		Task 5 - Sites & Evaluation					
Function	Purpose & Benefits	Operational Feasibility	Commercial & Economic Feasibility	Technical Feasibility	Cost-Benefit Analysis	Cost-Effectiveness Analysis	Risk Analysis	Community & Environmental Feasibility	Performance Measures	Concept Evaluation	Concept Evaluation	Concept Evaluation	Concept Evaluation
Inland Port													
Container Depot													
Empty Reefer Staging													
Air cargo consolidation													
Marine-Domestic Transloading													
Rail/Truck Transloading													
Foreign Trade Zone													
LCV Staging													
Truck Parking													
Agile Port Container Sort													
Other													

# REPORT

Item 5.5

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**DATE:** January 17, 2007

**TO:** Goods Movement Task Force

**FROM:** Danny Wu, Program Manager for Goods Movement, 213-236-1930,  
[wu@scag.ca.gov](mailto:wu@scag.ca.gov)

**SUBJECT:** Environmental Mitigation Plan for Goods Movement Study

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## BACKGROUND:

In May 2006, SCAG retained ICF Consulting to perform the Environmental Mitigation Plan for Goods Movement Study. The study was undertaken to help in the development of a comprehensive plan to mitigate the air quality impacts of goods movement in the region. The objective of the study is to create an action plan that identifies the costs, benefits, and implementation schedule for emission reduction measures for the SCAG region as well as estimate the net effect of goods movement on air quality.

Mr. Jeff Ang-Olson of ICF Consulting will provide an update on the progress of the Environmental Mitigation Plan for Goods Movement Study.



## Environmental Mitigation Plan for Goods Movement in Southern California

Project Status Update

January 17, 2007

Jeff Ang-Olson, ICF

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### Project Objectives



- Identify potential emission reduction strategies for goods movement
- Estimate emission reductions, costs, and cost-effectiveness of each strategy
- Assess potential for SIP credit, feasibility, timeline, barriers to implementation, and acceptability to stakeholders
- Prioritize strategies and quantify what could be accomplished with given investment (e.g., \$10 billion)
- Support achievement of NAAQS; provide input to AQMP and SCAG RTP Update

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### Project Tasks



- Literature Review
- Analysis of Strategies
- Outreach
- Develop Action Plan

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## Key Documents



- San Pedro Bay Ports *Clean Air Action Plan*
- Port of Los Angeles *No Net Increase Plan*
- CARB's *Emission Reduction Plan for Ports and Goods Movement*
- SCAQMD's Draft *2007 Air Quality Management Plan*
- Caltrans' *Goods Movement Action Plan*
- SCAG's *Goods Movement Plan for Action*

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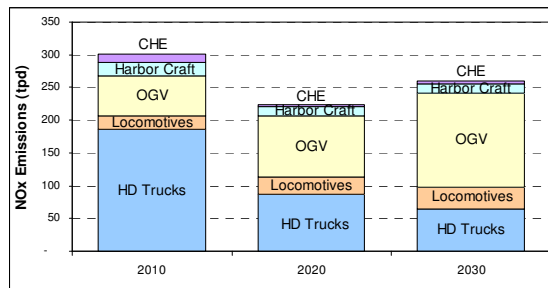
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## Baseline Goods Movement NOx Emissions (SoCAB)



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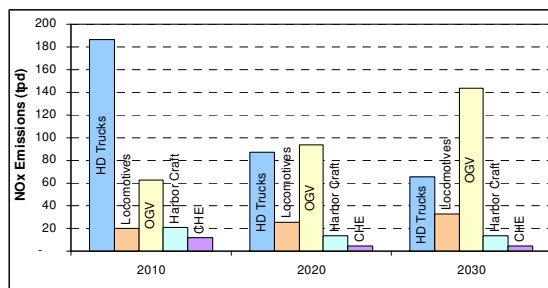
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## Baseline Goods Movement NOx Emissions (SoCAB)



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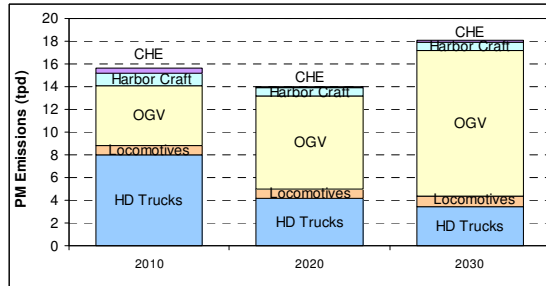
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## Baseline Goods Movement PM Emissions (SoCAB)



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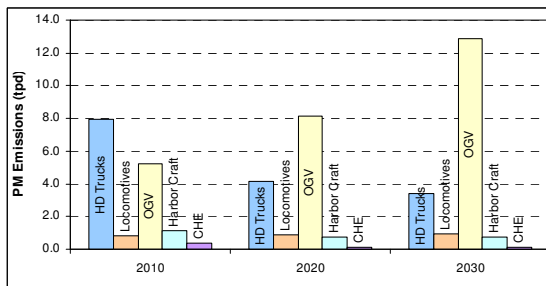
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## Baseline Goods Movement PM Emissions (SoCAB)



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## Types of Emission Reduction Strategies



### Engine, Equipment, Fuel Strategies

- New standards
- Replacement (scrappage)
- Repower
- Retrofit
- Alt. Fuels

### Operational Strategies

- Speed changes
- Idle reduction
- Mode shift
- Efficiency improvements

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## Types of Emission Reduction Strategies, cont.



### Regulatory / Enforceable Strategies

- State/local rules & regulations
  - Technology-based
  - Performance-based
- Federal or international rules & regulations
- Lease agreements
- Enforceable agreements

### Voluntary Strategies

- Incentives
  - Monetary
  - Non-monetary
- Contracting mechanisms
- Education and leadership
- Cost-savings

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## HD Truck Strategies



- Truck Replacement
- Retrofit with DOC
- Retrofit with FTF
- Retrofit with DPF
- Repowering
- Virtual Container Yard
- Expanded Incident Management for Truck
- Expansion of PierPass
- Dedicated Truckways
- Chassis Pools

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## Railroad Strategies



- APU Hybrid Locomotive (Green Goat)
- Retrofit with DOC
- Retrofit with DPF
- Retrofit with SCR
- New Emission Standards
- Electrification of Alameda Corridor
- Locomotive Idle Reduction
- Expansion of On-Dock Service
- Expansion of Near-Dock Service
- Inland Rail Improvements
- Grade Crossing Separation

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## Ocean-Going Vessel Strategies



- OGV Speed Reduction
- Cold Ironing (shore power)
- Expanded Aux Engine Fuel Requirements
- Main Engine Fuel Requirements
- OGV Engine Improvements: Slide Valve Injectors
- OGV Engine Improvements: Other Technologies
- Crane Double Cycling

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## Harbor Craft Strategies



- Emulsified Fuel
- Biodiesel
- Retrofit with Emission Controls (DOC, DPF, SCR)
- Shore Power for Harbor Craft
- Repowering

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## Cargo Handling Equipment Strategies



- Engine/Equipment Replacement
- Alternative Fuels (LPG, LNG, Electrification)
- NOx Control Retrofits

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## Cost Effectiveness Methodology



### ■ Annualized Cost Effectiveness

$$\frac{\text{Annualized Capital Cost} + \text{Annual O\&M Cost (in \$/year)}}{\text{Annual emission reduction (in tons/year of NOx, ROG, or PM)}}$$

### ■ AQMD BACT Method

$$\frac{\text{NPV (all Capital Costs} + \text{all O\&M Costs)}}{\text{Total lifetime emission reduction (in tons of NOx, ROG, or PM)}}$$

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## Cost-Effectiveness Examples – Truck Strategies in 2010



Strategy	NOx	PM
Replace MY 1988-1993 MHDDT with MY 1998-2002	\$16,149	\$301,137
Replace MY 1994-2002 HHDDT with MY 2007+	\$4,904	\$96,359
Retrofit MY 1994-2002 HHDDT with DOC	N/A	\$17,879
Retrofit MY 1994-2002 HHDDT with FTF	N/A	\$20,114
Retrofit MY 1994-2002 HHDDT with DPF	N/A	\$13,575
Repower MY 2003-2006 MHDDT with 2007+ engine	\$27,299	\$1,147,996
Repower MY 2003-2006 HHDDT with 2007+ engine	\$7,295	\$64,575
Virtual Container Yard (5% re-use)	\$6,558	\$160,230
Truck Incident Management on I-710	\$7,041	\$27,212
PierPass Expansion	\$30,667	\$484,005

(preliminary draft results)

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## Cost-Effectiveness Examples – Railroad Strategies in 2010



Strategy	NOx	PM
Hybrid Switcher Engine (Green Goat)	<0	<0
Retrofit Switcher with DOC	N/A	\$64,472
Retrofit Line Haul Engine with DOC	N/A	\$38,160
Retrofit Switcher with DPF	N/A	\$97,320
Retrofit Line Haul Engine with DPF	N/A	\$33,130
Locomotive Idle Reduction	<0	<0
Electrification of Alameda Corridor (low)	\$12,680	\$254,593
Electrification of Alameda Corridor (high)	\$34,771	\$698,163
On-Dock Rail Expansion	\$49,112	\$1,121,869
Near-Dock Rail Expansion	\$32,096	\$735,867

(preliminary draft results)

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## Next Steps



- Complete Draft Task 1 Report
- Respond to Reviewer Comments and Complete Final Task 1 Report
- Stakeholder Outreach
- Develop Emission Reduction "Action Plan"

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